RESEARCH FUNDING AT

ALBERTA UNIVERSITIES

2002/2003 REPORT

December 2003

UNIVERSITY RESEARCH AND
STRATEGIC INVESTMENTS BRANCH

Alberta
INNOVATION AND SCIENCE

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Introduction
University Research in Alberta

Research conducted at Alberta's universities:

- creates new knowledge that adds to the existing body of understanding;
- disseminates knowledge to inform and enhance learning;
- contributes to the training of highly qualified personnel, including the next generation of university researchers and knowledge workers for industry;
- contributes to the social, cultural and economic well being of the province and of individual Albertans.

Technology and the economy are changing at a rapid pace. As such, innovation has become a central component to sustaining Alberta's economic competitiveness and acquiring and retaining a high quality of life for Albertans.

University research plays a vital role in the innovation process. Research conducted in Alberta's universities contributes to the search for innovative discoveries that have the potential for far-reaching economic and social implications. Through the university educational experience, research also contributes to the development of people with scientific knowledge and problem-solving skills that can be applied throughout society and a wide range of industries. A key output of a university is its graduates because of the skills and knowledge that they possess.

The cumulative research successes of a university, coupled with the building of an institution's infrastructure, are key determinants in attracting future resources. These resources come in the form of people (quality faculty and students) and financial support. These resources in turn improve the quality of both the institution's research and educational programs.

This report summarizes sponsored research revenues at Alberta Universities. Research revenues are devoted to the operating and infrastructure costs of research activities. Sponsored research revenues are those that are received outside of the regular university operating grant and include both research grants and research contracts.

Financial Note: The data in this report is provided directly by the universities and is not from audited financial schedules.

Provincial Government Support of University Research

Research at Alberta universities is supported in part by the provincial government through Alberta Innovation and Science, the Alberta Science and Research Authority (ASRA), Alberta Learning and Alberta Infrastructure, as well as through the Alberta Heritage Foundation for Medical Research and the recently established Alberta Ingenuity Fund (Alberta Heritage Foundation for Science and Engineering Research).

Research funding provided by Innovation and Science and ASRA programs does not generally support specific research projects; instead the majority of these programs fund widely-applicable university research infrastructure which helps to build the capacity and capability required to support a broad range of research activities. However, there is a clear link between funding general infrastructure and attracting additional external funding for research activities (i.e., as better infrastructure is put in place, the potential to attract funding for research activities increases). Alberta Infrastructure provides funds for the large capital buildings and related capital infrastructure required for the university research system.

Operating Grant

Alberta Learning provides an operating grant to the universities, which includes funding for teaching, research and administrative activities. It is estimated that up to 40 percent of the operating grant goes directly or indirectly towards supporting research activities. The 2002/03 university operating grant totalled $566,318,674.

Alberta Science and Research Investments Program (ASRIP)

The Alberta Science and Research Investments Program (ASRIP) is a competitive funding program that supports selected science and research initiatives of strategic importance to Alberta. ASRIP is available for science and research initiatives under two distinct funding streams: Research Infrastructure and Enabling Research Application and Technology Transfer. The 2001/02 ASRIP competition approved a total of $52.1 million for 62 projects. As noted in the previous edition of this report, ASRIP approved this support in two phases. The phase one proposals (New Opportunities and Canada Research Chairs, totaling $4.1 million) were approved in the 2001/02 fiscal year and thus were included in the previous Research Funding Report's Table 2. The phase two proposals (Research Infrastructure, ERATT and SAP, totaling $48 million) were approved in 2002/03 and are included in this report. This edition's Table 2 provides a complete listing of proposals approved under phase two of the 2001/02 ASRIP competition.

Funding allocated to the universities from the ASRIP program is reported on a modified cash flow basis, in that funds cannot be reported until all partner funding is secured. Coupled with the fact that the majority of funded projects are multi year and receive funding in installments, this means that 2001/02 ASRIP funding will continue to be reflected in future year reports.

Targeted Support for New Opportunities Awardees

In 2002/03, the Alberta Science and Research Authority approved a strategic grant totaling $3.6 million for 23 projects. This support was targeted to assist Alberta universities' efforts to recruit and retain key researchers in the priority areas of life sciences, energy and ICT. ASRA funds leveraged federal, private sector and university sources to enable the purchase of modern equipment for talented recruits. Table 3 provides a complete listing of proposals supported by this targeted support.

Core University Research in Sustainable Energy (COURSE)
The Alberta Energy Research Institute (AERI) invests in university research primarily through the Core University Research in Sustainable Energy (COURSE) program. The COURSE program, formerly known as Coordination of University Research for Synergy and Effectiveness, provides a link between the energy industry and universities to ensure that basic research in strategic areas is funded. In 2003, COURSE funded 10 projects at the University of Alberta for $1,681,350 and five projects at the University of Calgary for $1,053,840. AERI also sponsors three chairs at the University of Alberta ($261,000), and funds several non-COURSE projects at the University of Calgary ($223,871).

Farming for the Future
Through the competitive Agricultural Research Funding Program, in 2002/2003, the Alberta Agricultural Research Institute (AARI) provided $2.7 million to fund new agricultural research at two Alberta universities. This funding was in strategic priority areas including beef genomics, swine reproduction, sustainable cropping systems, food production, livestock systems, and value-added processing. The University of Alberta received $2.6 million and the University of Calgary received $186,000. The AARI investment in these new research initiatives was leveraged significantly through the Funding Consortium members, other public funding sources, and industry.

Alberta Informatics Circle of Research Excellence (iCORE)
The mandate of the Alberta Informatics Circle of Research Excellence (iCORE) is to attract and grow a critical mass of outstanding researchers in the fields of computer science, computer engineering, physics, mathematics and other Information and Communication Technology-related disciplines. Building on existing excellence in Alberta's universities, iCORE forms and supports strong scientific teams in ICT. In 2002/03 iCORE provided $9 million in support of 13 Chairs and Professors, 33 faculty researchers and 203 graduate students and post-doctoral fellows. An additional 138 graduate students receive iCORE Graduate Student Scholarships.
Source: iCORE Inc. Performance Measures 2003.

Alberta Heritage Foundation for Medical Research (AHFMR)
Established by the Government of Alberta in 1980, the Alberta Heritage Foundation for Medical Research (AHFMR) supports biomedical and health research at Alberta universities, affiliated institutions, and other medical and technology-related institutions. The AHFMR's support and leadership has resulted in millions of dollars of support to Alberta universities and research hospitals and has enabled Alberta to become one of the top ten medical research centres in North America.

Alberta Ingenuity Fund (Alberta Heritage Foundation for Science and Engineering Research)
Modeled after the Alberta Heritage Foundation for Medical Research, the Alberta Ingenuity Fund was established in 2000 with an endowment fund of $500 million to support a balanced, long-term program of science and engineering research in Alberta.

Executive Summary of Statistics

Sponsored research funding to Alberta universities decreased slightly in 2002/03. However, in 2001/02, the universities benefited from a one-time, Tri-Council grant of $19.2 million to offset the indirect costs associated with the dramatic increase in sponsored research funding. When this grant is accounted for, sponsored research actually increased $16 million from 2001/02 to 2002/03. In the long-term, sponsored research funding in Alberta shows a dramatic increase, more than doubling in the past six years to $434.2 million in 2002/03. This large increase in funding reflects:

1. The introduction of new programs and expansion of existing programs, at both the federal and provincial levels, aimed at strategically investing in university research.
2. Increased capacity and capabilities at Alberta universities.

In the past 6 years, provincial government funding for university research has increased more than 2.5 times, to $127.1 million, a firm indication of its commitment towards science and innovation.

Federal government funding to Alberta universities has more than doubled over the last five-year period to $188.6 million in 2002/03. This is primarily the result of new programs such as the Canada Foundation for Innovation and the Canada Research Chairs and expanded budgets for the federal granting councils (the Natural Sciences and Engineering Research Council, the Social Sciences and Humanities Research Council and the Canadian Institutes for Health Research).

The level of sponsored research funding provided to universities by non-governmental sources, primarily industry and non-profit organizations, fell from $104.9 million in 2001/2002 to $100.5 million in 2002/03. However, non-governmental research funding has more than doubled in the past 6 years.

Other indicators of the impacts of university research on industry are the application and transferability of research to industry. In 2002/03, with the help of the Research Services Office at the University of Alberta and University Technologies International Inc. at the University of Calgary, 205 new inventions were disclosed, 137 patents were filed, 298 new agreements were executed, 7 start up companies were formed, and $6 million in licensing revenues were received.

The distribution of total sponsored research funding from all sources follows a fairly consistent historical pattern, with the largest proportion of funding going towards the faculties of medicine, science, and engineering at both the Universities of Alberta and Calgary. However, it should be noted that, although funding amounts vary by discipline, the intensity of research in faculties is not necessarily commensurate with monetary allocations to faculties. Support and administration costs also take up an average of 10 percent of the sponsored research revenues.

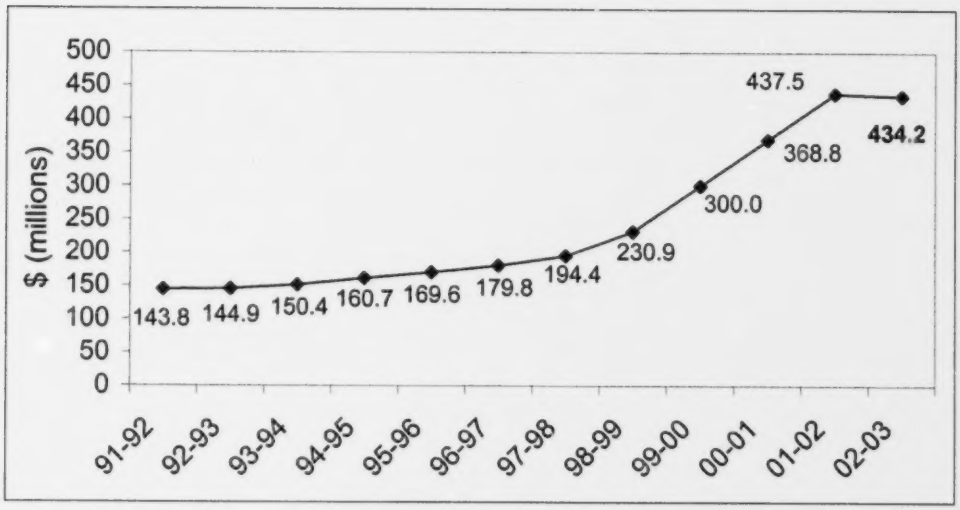
The Alberta Heritage Foundation for Medical Research has awarded $215 million over the past five years to Alberta's medical faculties and teaching hospitals, which has enabled Alberta to become one of the top ten medical research centres in North America.

The Alberta Ingenuity Fund (AIF) was created in 2000 to support research in the strategic priority area of Life Sciences. The AIF increased its contributions to Alberta universities from $276,000 in its first year to over $5.3 million in 2002/03.

Note: Six-year comparisons are designed to illustrate the change in sponsored research associated with the introduction of CFI and associated provincial infrastructure programs.

Total Sponsored Research Revenue to Alberta Universities 1991/92 to 2002/03

FIGURE 1



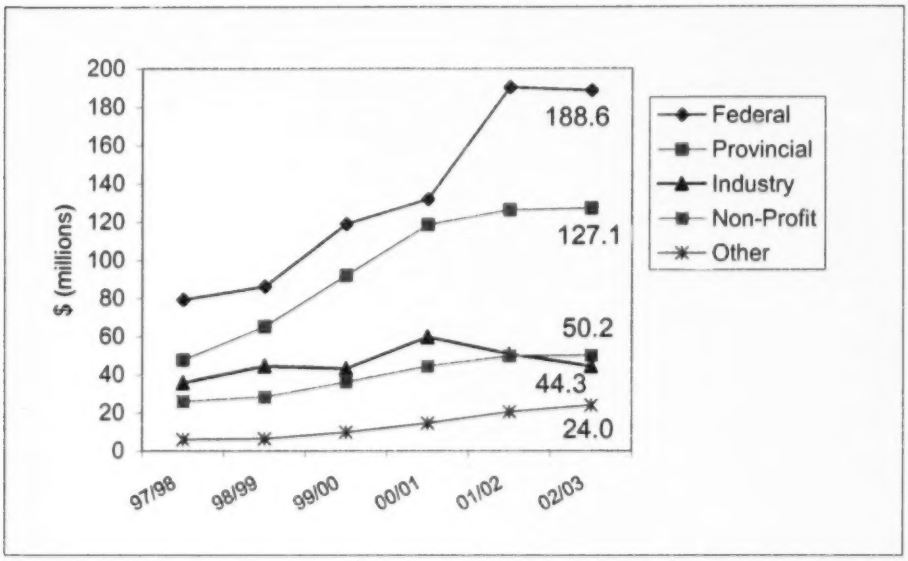
Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services; Athabasca University: Office of the Vice-President, Academic.

- In 2002/03 Alberta's four universities received $434.2 million in sponsored research funding, a slight decrease from last year.
- Over the past six years, sponsored research funding has more than doubled, with an average growth rate of 16 percent per year.
- In the last 6 years Alberta universities have received almost $2 billion in sponsored research funding.

Fiscal Year	Amount of Funding	Increase from previous year
2002/03	$434.2 million	-0.7%
2001/02	$437.5 million	18.6%
2000/01	$368.8 million	22.9%
1999/00	$300.0 million	29.9%
1998/99	$230.9 million	18.8%
1997/98	$194.4 million	8.1%

Total Sponsored Research Revenue by Source 1998/99 to 2002/03

FIGURE 2A



* 'Other' includes both other governmental and non-governmental sources.
Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services; Athabasca University: Office of the VP, Academic.

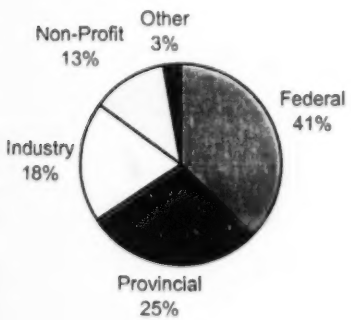
- Funding to universities has been steadily increasing from federal, provincial and non-profit sources over the past six years. Over the long-term, funding from industry has been increasing (138 percent since 1993/94) but is inconsistent on a year-to-year basis.

- Funding from provincial sources has increased more than 2.5 times over 6 years; from $47.7 million in 1997/98 to $127.1 million in 2002/03. Federal sources have increased by 138 percent in that same time period.

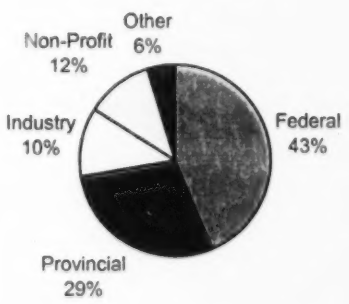
- The following pie charts show how funding from various sources has changed as a percentage of total funding over a six-year period. Funding from provincial sources has increased from 25 percent to 29 percent of total sponsored research funding. Federal funding has also increased slightly, from 41 percent to 43 percent. Funding from industry has dropped from 18 percent to 10 percent.

FIGURE 2B

1997/98

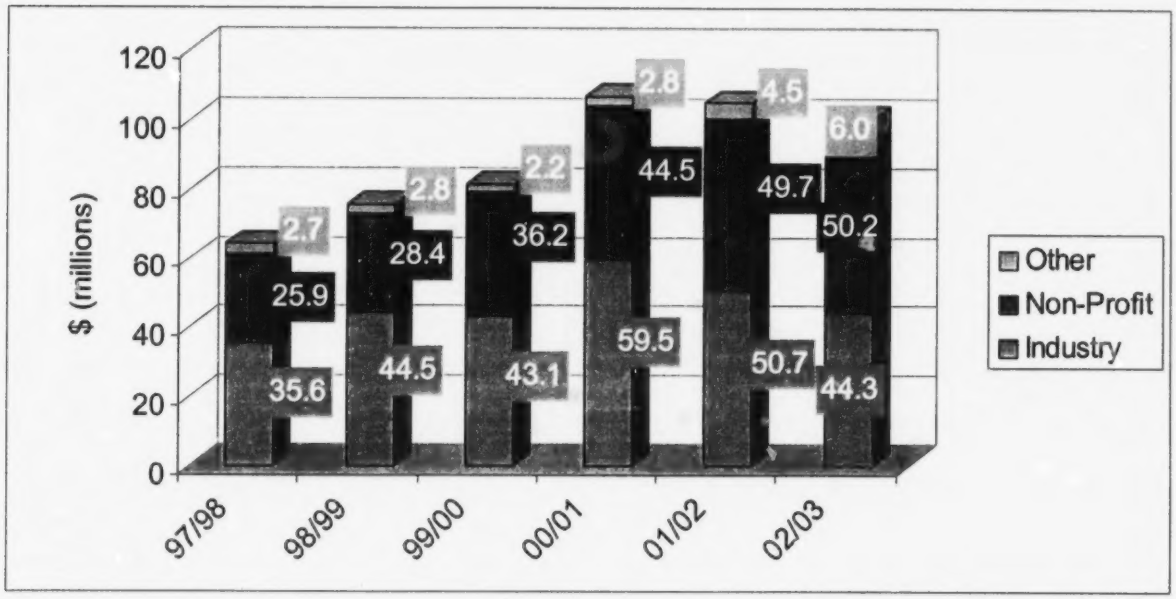


2002/03



Non-Governmental Support for Sponsored Research 1998/99 to 2002/03

FIGURE 3



* 'Other' includes only other non-governmental sources.
Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services; Athabasca University: Office of the VP, Academic.

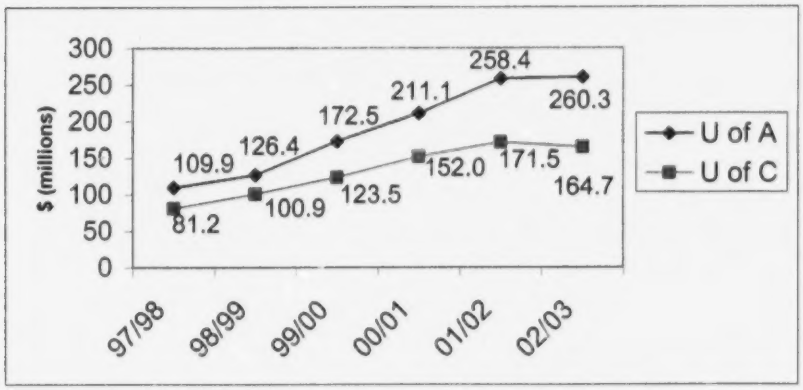
- The total level of funding provided by non-governmental sources to Alberta universities decreased from $104.9 million in 2001/02 to $100.5 million in 2002/03. Despite this fluctuation, non-governmental funding of research has increased 56 percent since 1997/98.

- In 2002/03, industry investment dropped by 12.6 percent from the previous year. Similar to other sources of non-governmental funding, there is a strong upward trend since 1993/94, increasing from $18.6 million to $44.3 million over 10 years.

- The non-profit sector has consistently increased its sponsored research funding to universities over the past six years to almost double the 1997/98 level.

Sponsored Research Revenue at Individual Universities 1998/99 to 2002/03

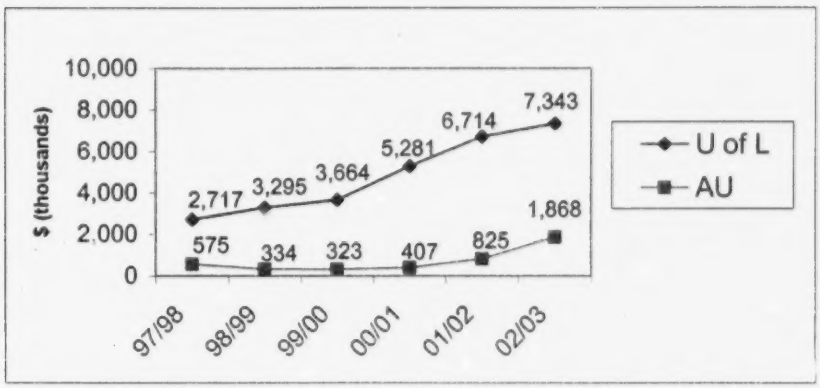
FIGURE 4A



Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services.

- In 2002/03 total sponsored research funding to the University of Alberta was $260.3 million, more than double the funding in 1997/98 when it received $109.9 million.
- In 2002/03 University of Calgary received $164.7 million in sponsored research funding, double the $81.2 million received in 1997/98.

FIGURE 4B

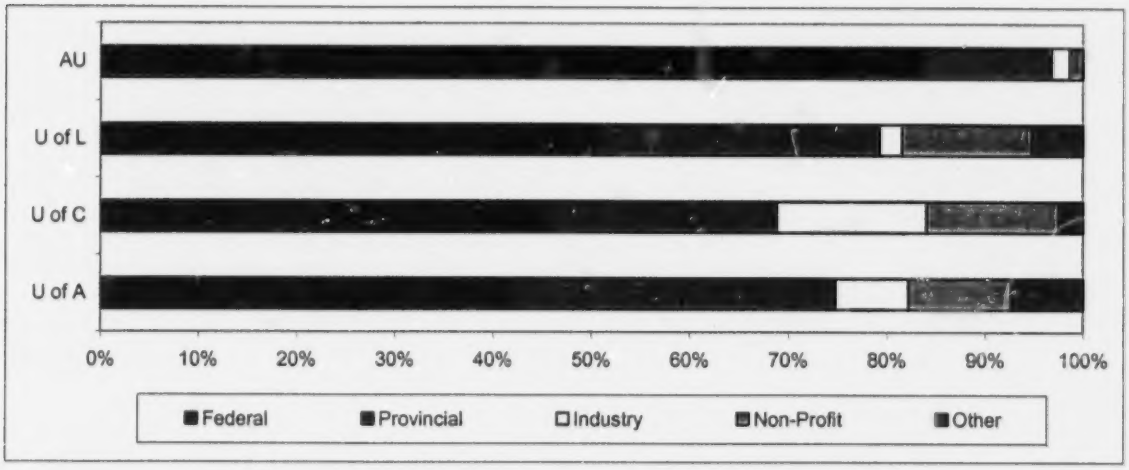


Sources: The University of Lethbridge: Financial Services; Athabasca University: Office of the Vice-President, Academic.

- The University of Lethbridge has been successful in consistently increasing its level of support in recent years. In six years, funding has increased more than 2.5 times, to $7.3 million in 2002/03 from $ 2.7 million in 1997/98. Between 2001/02 and 2002/03 funding increased by 27 percent.
- Athabasca University received $ 1.9 million for sponsored research in 2002/03, double the previous year.

Sponsored Research Revenue at Individual Universities by Source 2002/03

FIGURE 5



Other includes governmental and non-governmental funds
Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services; Athabasca University: Office of the Vice-President, Academic.

- In 2002/03 the federal government was the largest source of funding to all Alberta universities followed by provincial government sources.

- The University of Alberta received over 40 percent of its sponsored research funding from federal government sources. Over the past six years, funding from the federal government has more than doubled, from $50.6 million in 1997/98 to $108.7 million in 2002/03. Funding from industry has seen a 36 percent increase since 1996/97. Since 1997/98, funding from the provincial government has seen the largest jump, increasing by 3.3 times, from $26 million in 1997/98 to $86.0 million in 2002/03.

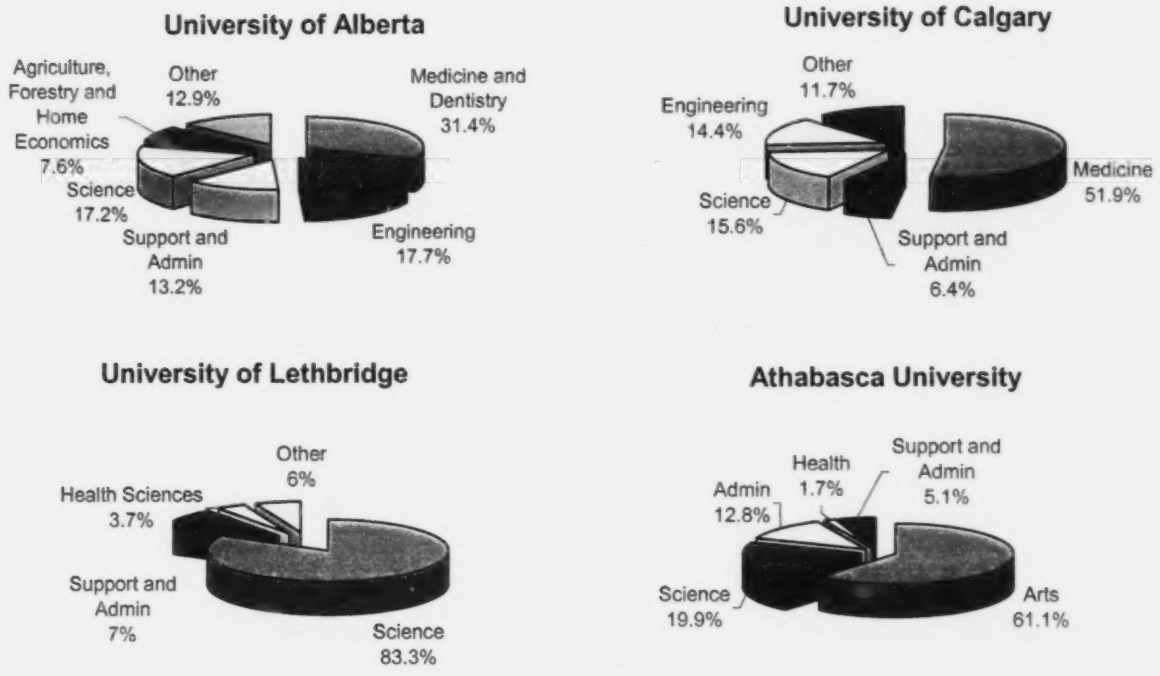
- Funding to the University of Calgary from provincial sources was $38.7 million in 2002/03, a significant decrease from the previous year, but 87 percent higher than 1997/98 funding. Federal government funding rose from $64.2 million in 2001/02 to $74.7 million in 2002/03 - an increase of 16 percent. Industry funding to the University of Calgary decreased slightly in 2002/03, but shows an upward trend, increasing 56 percent since 1996/97.

- Funding from federal sources to the University of Lethbridge in 2002/03 was $3.7 million, more than doubling in the last six years. Funding from provincial sources has increased 123 percent over the same six-year period. Funding from industry, at $164,000 in 2002/03, increased slightly from the previous year.

- Athabasca University experienced a spike in levels of government funding. Funding from the federal government, at $1.6 million in 2002/03, was almost 3 times greater than in 2001/02. Industry funding increased from $4,000 in 2001/02 to $34,200 in 2002/03.

Distribution of Total Sponsored Research Revenue Within Alberta Universities 2002/03

FIGURE 6



Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services; Athabasca University: Office of the VP, Academic.

- At the University of Alberta, the Faculty of Medicine secures the largest proportion of research funding at 31.4 percent. The Faculty of Engineering and the Faculty of Science each obtained about 17 percent of funding in 2002/03.

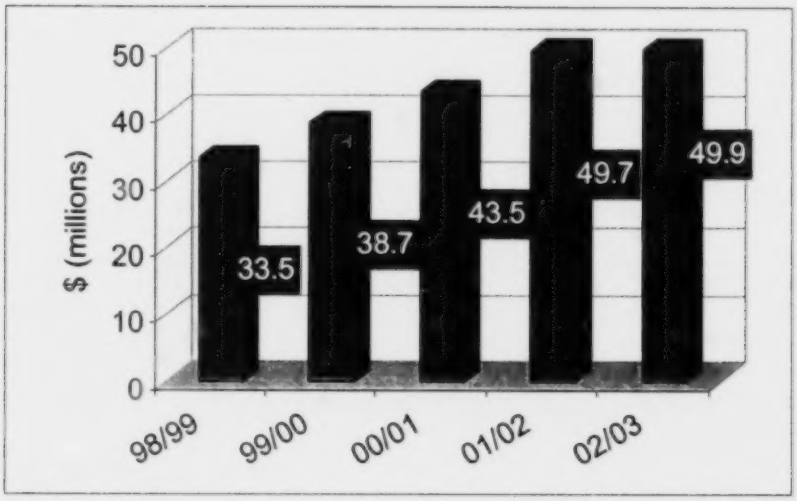
- The University of Calgary's Faculty of Medicine accounted for over 50 percent of 2002/03 sponsored research funding to the university. The Faculty of Science and the Faculty of Engineering obtained similar levels of sponsored research funding at 15.6 and 14.4 percent respectively.

- The proportional allocation of research funding to faculties at the University of Lethbridge follows a consistent historical pattern, the greatest share of funding being secured by the Faculty of Science at 83.3 percent in 2002/03. Athabasca University is also consistent with the majority of sponsored research revenue, 61.1 percent, secured by the Faculty of Arts.

Note: Funding amounts vary by discipline, but the intensity of research in faculties is not necessarily commensurate with monetary allocations to faculties. For example, research activities in the Arts, Humanities and Social Sciences tend to be less costly to conduct; therefore, the intensity of such research is not necessarily reflected in monetary terms.

Alberta Heritage Foundation for Medical Research (AHFMR)
1998/99 to 2002/03

FIGURE 7

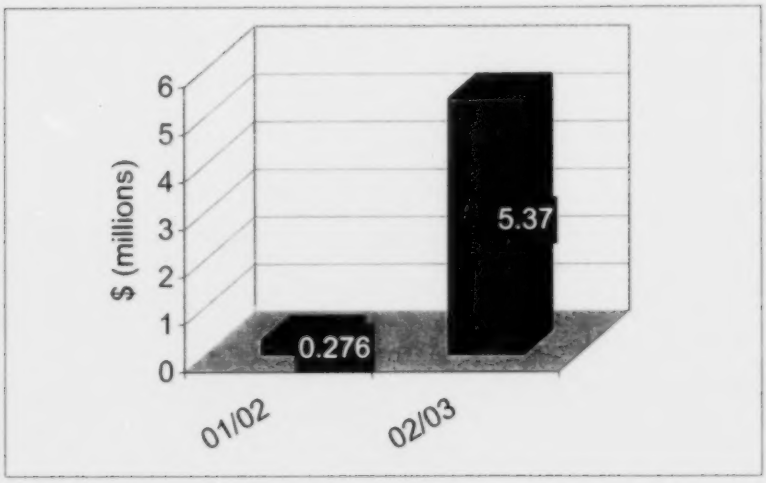


Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services.

- In the last five years AHFMR support to Alberta's universities has increased by 50 percent, to $49.9 million from the 1998/99 level of $33.5 million.
- The AHFMR has provided $215 million in sponsored research to Alberta's universities over the past five years.

Alberta Ingenuity Fund (AIF)
2001/02 to 2002/03

FIGURE 8



Sources: University of Alberta: Research Services Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services.

- The AIF was established in 2000 and is just beginning to move forward with funding decisions.
- In 2002/03 AIF contributed $53.7 million in sponsored research funding to Alberta universities.

Commercialization of Research 2002/03

The University of Alberta and the University of Calgary generate funding through the activities of their respective technology transfer organizations, the Research Services Office for the University of Alberta and University Technologies International Inc. for the University of Calgary. The impact of university research is reflected in the successes of these organizations through the growing number of licenses generating revenue, royalty revenues and spin-off companies. These successes give an indication of the impacts of university research as it is applied and transferred to industry and society.

The University of Alberta

With the help of the Research Services Office, the University of Alberta experienced the following commercialization activity in 2002/03:

- 90* reports of invention disclosed;
- 77* patent applications filed and 29* issued;
- 178 licenses, options or agreements signed;
- 4 new spin-off companies created;
- $1.5 million in licensing revenues received; and
- 20 new products or technologies licensed.

*Note: includes commercialization activity at the University of Alberta undertaken by TRLabs.

At the end of the 2002/03 fiscal year the University of Alberta held equity in 41 companies with an estimated value of $39 million (at March 31, 2003). There were 69 active or early stage spin-off companies collectively employing more than 1,000 highly skilled workers. Eight companies are publicly traded companies.

Source: "2002-03 Annual Report, Technology Transfer Group, Research Services Office," University of Alberta 2003.

The University of Calgary

The University of Calgary's wholly owned commercialization company, University Technologies International Inc. (UTI), continues to enable the University of Calgary to rank among the top Canadian universities generating royalty revenues from licensed technologies. In 2002/03, UTI received $4.5 million in licensing revenues.

In addition, UTI attracted $417,000 in Product Development Agreements to the University of Calgary and contributed $45,000 directly to post-graduate fellowships.

Also in 2002/03 UTI had:

- 20 commercialization deals executed;
- 115 disclosures of new technology;
- Three start-up companies created, all from University of Calgary technologies;
- 133 licenses generating revenue from a portfolio of more than 400 patents; and
- 60 patent applications filed and 57 issued.

Source: UTI, University of Calgary.

The University of Lethbridge

The University of Lethbridge's technology transfer operation is an emerging office that opened its doors November 2003. With the help of the Office of Research Services, the University of Lethbridge experienced the following commercialization activity in 2002/03:

- Implementation of a formal disclosure process;
- Tracking system for patent applications filed and issued;
- New spin-off companies initiated;
- Framework for institutional policies for management of intellectual property developed; and
- Templates for research agreements in place.

Source: Office of Research Services, University of Lethbridge.

Research Revenue from Investment Earnings, Networks of Centres of Excellence and Clinical Trials 2002/03

Reporting Standards

- Alberta universities follow common approaches to most of their reporting. However, there are a number of reporting differences between universities, including investment earnings (primarily endowment) allocated to research expenditure, Networks of Centres of Excellence (NCE) revenue and clinical trials funding.

- Differing situations at the University of Alberta and the University of Calgary make reporting these three sources in the same manner particularly difficult. The explanatory notes and revenues recorded below have been included in this report to ensure that this report is as inclusive of all sponsored research revenue and to allow for a comparable overview of the significant revenues derived from these three sources at the University of Alberta and the University of Calgary.

The University of Alberta

Investment Earnings from Endowments

- In 2002/03, investment earnings from endowments totaling $2.8 million were allocated for research spending but are not included in the Sponsored Research Revenue table.

Networks of Centres of Excellence (NCEs)

- The NCE revenue in 2002/03 was $6.1 million.

- This amount is understated, as the Research Revenue Schedule in the University's Financial Statements does not breakdown by organization revenue received in amounts less than $50,000. These smaller amounts are included in the "Other" category of the Sponsored Research Funding table.

Clinical Trials

- Virtually all funds for clinical trials are received, held, and administered by the Capital Health Authority, with a small portion administered by the Alberta Cancer Board.

- Revenues for clinical trials reported by the Capital Health Authority and Alberta Cancer Board bring the total estimated clinical trials and related research funding for the University of Alberta to $23.8 million for 2002/03. This revenue is not included in the Sponsored Research Revenue table.

Source: University of Alberta: Research Services Office.

The University of Calgary

Investment Income

- In addition to the $164.7 million in sponsored research funding listed in table 1 (page 15), the University of Calgary allocated $4.2 million of investment income to research activities.

Networks of Centres of Excellence (NCEs)

- The University of Calgary is responsible for administering a Network of Centres of Excellence (NCE) that provides grants to researchers at universities across Canada. Funding for the NCE is provided by the Natural Sciences and Engineering Research Council (NSERC) and the Canadian Institutes of Health Research (CIHR).

- $2.4 million in funding received for the NCE is included in the sponsored research total.

Clinical Trials

- The University of Calgary has entered into an agreement with the Calgary Regional Health Authority with respect to the administration of industry sponsored, patient-based clinical research. Under this agreement, the researcher has the option of administering the financial resources of each individual clinical trial through the financial system of either the University or Regional Health Authority, regardless of the physical location of where the clinical trial is held. To date, the majority of these clinical trials are administered through the University's financial system.

- Total clinical trial revenue for 2001/02 is $11.1 million and is included as sponsored research revenue.

Source: University of Calgary: Financial Services.

Table 1: Sponsored Research Revenue
1999/00 to 2002/03

Sources		Recipient	1999/2000	2000/01	2001/02	2002/03
Federal Gov't	NSERC	Alberta	31,374	35,600	37,590	35,506
		Calgary	17,832	16,614	18,246	20,809
		Lethbridge	1,407	1,804	1,705	1,973
		Athabasca	9	8	52	37
	SSHRC	Alberta	5,428	5,611	* 19,510	7,939
		Calgary	2,916	3,662	** 9,515	3,444
		Lethbridge	139	141	201	207
		Athabasca	71	41	175	55
	CIHR	Alberta	19,170	23,277	30,467	33,180
		Calgary	14,041	18,914	25,927	27,167
		Lethbridge	227	226	222	312
		Athabasca	0	0	52	52
	CFI	Alberta	8,133	5,698	22,133	14,699
		Calgary	6,378	2,510	4,164	10,284
		Lethbridge	150	0	218	610
		Athabasca	0	0	78	227
	CRC	Alberta				8,192
		Calgary				4,425
		Lethbridge				0
		Athabasca				142
	OTHER	Alberta	6,418	12,597	13,030	9,144
		Calgary	4,908	4,573	6,308	8,591
		Lethbridge	220	359	373	597
		Athabasca	108	92	219	1,041
	Subtotal	Alberta	70,523	82,783	122,730	108,660
		Calgary	46,076	46,274	64,160	74,720
		Lethbridge	2,143	2,530	2,719	3,699
		Athabasca	189	140	576	1,554
		All	**118,931**	**131,727**	**190,185**	**188,633**
Alberta Gov't	AHFMR	Alberta	20,330	22,798	23,707	26,313
		Calgary	17,780	20,126	24,422	22,564
		Lethbridge	548	544	1,562	1,041
		Athabasca	0	0	0	0
	I&S and ASRA	Alberta	19,205	30,822	17,353	38,506
		Calgary	9,276	15,778	18,499	8,011
		Lethbridge	223	742	876	538
		Athabasca	130	263	114	220
	AIF	Alberta			177	3,905
		Calgary			99	1,346
		Lethbridge			0	123
		Athabasca			0	0
	OTHER	Alberta	16,958	12,279	***27,725	17,316
		Calgary	7,381	14,439	11,463	6,767
		Lethbridge	131	711	245	418
		Athabasca	0	0	103	33
	Subtotal	Alberta	56,493	65,899	68,962	86,040
		Calgary	34,437	50,344	54,483	38,686
		Lethbridge	902	1,997	2,683	2,120
		Athabasca	130	263	217	253
		All	**91,962**	**118,503**	**126,345**	**127,101**
Other Gov't		Alberta	6,435	9,717	13,733	14,207
		Calgary	1,071	1,911	2,138	3,414
		Lethbridge	88	66	107	341
		Athabasca	0	0	0	0
		All	**7,594**	**11,694**	**15,978**	**17,962**
Industry		Alberta	22,143	29,853	24,798	19,212
		Calgary	20,873	29,628	25,731	24,913
		Lethbridge	110	47	162	164
		Athabasca	4	4	4	34
		All	**43,130**	**59,532**	**50,695**	**44,323**
Non-Profit		Alberta	15,611	20,400	24,476	27,019
		Calgary	20,361	23,616	24,197	22,171
		Lethbridge	193	501	1,022	972
		Athabasca	0	0	28	24
		All	**36,165**	**44,517**	**49,723**	**50,186**
Other		Alberta	1,310	2,450	3,746	5,129
		Calgary	634	251	768	802
		Lethbridge	228	140	21	47
		Athabasca	0	0	0	3
		All	**2,172**	**2,841**	**4,535**	**5,981**
TOTAL Note: Totals may not add due to rounding		Alberta	172,515	211,102	258,445	260,267
		Calgary	123,452	152,023	171,478	164,708
		Lethbridge	3,664	5,281	6,714	7,343
		Athabasca	323	407	825	1,868
		All	**299,954**	**368,813**	**437,462**	**434,186**

* Includes $11,899,000 for indirect costs ** Includes $7,319,000 for indirect costs *** Includes $21,002,000 from Alberta Infrastructure

Sources: University of Alberta: Research Grants Office; the University of Calgary: Financial Services; The University of Lethbridge: Financial Services; Athabasca University: Office of the VP, Academic.

Table 2: Alberta Science and Research Investments Program 2002/03 *Phase 2 Awards

* Proposals for the 2001/2002 competition were approved by the Alberta Science and Research Authority in 2 phases. This list contains those proposals approved in phase 2, which was within the 2002/2003 fiscal year. Proposals approved in Phase 1 year were listed in the 2001/2002 report.

Life Sciences **ASRIP Awards: $28,563,339** *Total Project Costs: $ 165,448,135*

Micro Processing Facilit for Applied Research in Agri-food Products (Olds, Paul Kolodziejczyk)
ASRIP Award: $ 250,000 Total Project Cost: $ 3,321,592

Prototyping a Novel Instrument (U of A, Alidad Amirfazli)
ASRIP Award: $ 100,000 Total Project Cost: $ 203,700

Super High Resolution 3D Imaging and Visualization (U of A, Anup Basu)
ASRIP Award: $ 500,000 Total Project Cost: $ 2,314,984

High Field MR for Biological Image Guided Tomotherapy (U of A, Gino Fallone)
ASRIP Award: $ 3,846,000 Total Project Cost: $ 9,776,300

Creation of the Alberta Diabetes Research Centre (ADRC) (U of A Raymond Rajotte)
ASRIP Award: $6,000,000 Total Project Cost: $ 39,832,358

Centre of Excellence for Viral Hepatitis Research (U of A, David Tyrell)
ASRIP Award: $2,000,000 Total Project Cost: $ 9,264,007

Protein and Gene Discovery Centre (U of A, D. Jed Harrison)
ASRIP Award: $ 1,800,000 Total Project Cost: $ 9,776,729

Heart & Stroke Research Centre (U of A & Capital Health, Stephen Archer)
ASRIP Award: $3,244,910 Total Project Cost: $16,613,301

Project Cybercell (U of A, U of C & U of L, Joel Weiner)
ASRIP Award: $ 4,700,000 Total Project Cost: $17,454,775

Advanced Technology Network for Animal Behaviour (U of C, Merle E. Olson)
ASRIP Award: $ 300,000 Total Project Cost: $ 600,000

Centre for Advanced Functional Imaging Studies (U of C, Alastair Buchan)
ASRIP Award: $1,800,000 Total Project Cost: $ 23,657,302

Centre for Health and Policy Studies (U of C, Cam Donaldson)
ASRIP Award: $150,000 Total Project Cost: $ 1,656,825

Integrating Research in Osteoarthritis: From Bedside to the Bench and Back Again (U of C, David Hart)
ASRIP Award: $1,900,000 Total Project Cost: $ 12,710,038

Centre for Mouse Genetics, Physiological Systems and Disease (U of C, James Cross)
ASRIP Award: $900,000 Total Project Cost: $ 14,539,489

Canadian Center for Behavioural Neuroscience (U of L, Bryan Kolb)
ASRIP Award: $272,429 Total Project Cost: $ 770,780

Broadband Network Reworking in Support of Bioinformatics and Imaging (U of C, Christoph Sensen)
ASRIP Award: $800,000 Total Project Cost: $ 2,955,955

Energy **ASRIP Awards: $ 639,200** *Total Project Costs: $ 2,348,000*

Oil Sands Tailings Research Facility (U of A David C. Sego)
ASRIP Award: $500,000 Total Project Cost: $2,000,000

Hybrid Passive-Active Lighting, Ventilation, and Thermal Systems for Commerical and Institutional Buildings (U of C, James Love)
ASRIP Award: $139,200 Total Project Cost: $348,000

Information and Communications Technology (ICT)
ASRIP Awards: $ 8,571,770 *Total Project Costs: $ 59,763,266*

Prototype Advanced Collaborative Environments (PACE) (Netera Alliance, Ken Hewitt)
ASRIP Award: $ 250,000 Total Project Cost: $ 714,871

TRNet (TRLabs, Roger Pederson)
ASRIP Award: $ 1,000,000 Total Project Cost: $9,270,000

Facility for Study of Effectiveness of Collaborative, Distributed Software Development (U of A, Paul Sorenson)
ASRIP Award: $ 546,350 Total Project Cost: $ 1,654,174

Westgrid: The Western Canada Research Computing Grid (U of A & U of C, Jonathon Schaeffer)
ASRIP Award: $ 5,995,420 Total Project Cost: $ 44,727,517

A Video Streaming Platform (U of C, Wael Badawy)
ASRIP Award: $ 175,000 Total Project Cost: $ 358,000

Experimental Lab. For Internet Systems and Applications (ELISA) (U of C, Carey Williamson)
ASRIP Award: $ 605,000 Total Project Cost: $ 3,038,704

Investing in Research Capacity (IRC) **ASRIP Awards: $ 10,256,396** *Total Project Costs: $ 37,519,230*

Athabasca University Geophysical Observatory (AU, Martin Connors)
ASRIP Award: $115,000 Total Project Cost: $ 294,200

Nanofabrication Facility (U of A, Michael Brett)
ASRIP Award: $ 3,082,460 Total Project Cost: $ 8,247,533

Alberta Centre for Surface Engineering and Science (U of A, Murray Gray)
ASRIP Award: $4,000,000 Total Project Cost: $13,163,230

Modern Infrastructure to Support Interdisciplinary Water Chemistry (U of A, David Schindler)
ASRIP Award: $1,400,000 Total Project Cost: $ 9,635,875

NMR, GC-MS & Computational Tools (King's College, Peter Mahaffy)
ASRIP Award: $ 200,000 Total Project Cost: $ 666,383

Development of a Collaboratorium Infrastructure (U of A, Robert Rankin)
ASRIP Award: $ 225,000 Total Project Cost: $624,065

Protective Clothing (U of A, Elizabeth Crown)
ASRIP Award: $ 537,462 Total Project Cost: $ 1,462,301

Centre for Comparative Psycholinguistics (U of A, Gary Libben)
ASRIP Award: $ 297,474 Total Project Cost: $ 744,317

Alberta Cooperative Conservation Research Unit (ACCRU) (U of A, William Samuel)
ASRIP Award: $ 320,000 Total Project Cost: $ 2,483,826

Advanced Infrared Physics Laboratory (U of L, David Naylor)
ASRIP Award: $ 79,000 Total Project Cost: $ 197,500

Total **ASRIP Awards: *$ 48,030,705*** *Total Project Costs: $ 265,078,631*

Table 3: Alberta Science and Research Investments Program
2002/03 *Phase 2 Awards
New Opportunities

Life Sciences **ASRIP Awards: $ 1,859,677** *Total Project Costs: $ 6,100,919*

Research infras. for asymmetric catalysis and supramolecular chemistry (King's U.C., G. Greidanus-Strom)
ASRIP Award: $36,530 Total Project Cost: $ 109,593
Novel approaches to forest productivity and global change (U of A, Scott Chang)
ASRIP Award: $155,658 Total Project Cost: $518,859
Field Studies of Competition, Ecology and Stand Dynamics in Boreal Forests (U of A, Philip Comeau)
ASRIP Award: $100,343 Total Project Cost: $33,476
Molecular physiological analysis of voltage-clamped respiratory neurons (U of A, Gregory Funk)
ASRIP Award: $280,792 Total Project Cost: $1,075,242
Flow Map Particle Image Velocimetry/Particle Laser-Induced Fluorescence System (U of A, M. Gamal El-din) *ASRIP Award:* $64,774 Total Project Cost: $215,914
Chemical and Biological Nanotechnology (U of A, John-Bruce Green)
ASRIP Award: $345,314 $ Total Project Cost: 1,151,047
Protein production and crystallisation facility for structural biology research (U of A, Bart Hazes)
ASRIP Award: $213,563 Total Project Cost: $711,877
Laboratory facility for biogeochemical studies of soil organic matter (U of A, Sylvie Quideau)
ASRIP Award: $146,414 Total Project Cost: $488,045
In-vivo High Resolution Computed Tomography Centre (U of C, Steven Boyd)
ASRIP Award: $164,056 Total Project Cost: $546,852
Laboratory of Human Cerebrovascular Physiology (U of C, Marc Poulin)
ASRIP Award: $219,002 Total Project Cost: $805,910
A Microscopy System to Measure Vascular Communication (U of C, Donald Welsh)
ASRIP Award: $133,231 Total Project Cost: $444,104

Energy **ASRIP Awards: $ 870,999** *Total Project Costs: $ 2,903,329*

Infrastructure for Flow-Surface Interaction Laboratory (U of A, Brian Fleck)
ASRIP Award: $ 166,861 Total Project Cost: $ 556,203
Single cylinder engine testbed facility for innovative internal combustion engine research (U of A, Charles Koch) *ASRIP Award:* $ 180,806 Total Project Cost: $ 602,686
Laboratory for the Design, Modelling, and Nonlinear Control of a Self-Bearing Motor (U of A, Alan Lynch)
ASRIP Award: $ 165,809 Total Project Cost: $ 552,698
Manufacturing, Modeling and Control of Solid Oxide Fuel Cells (U of A, Edward Meadows,)
ASRIP Award: $ 211,963 Total Project Cost: $ 706,542
Infrastructure for Fundamental Heterogeneous Catalyst Research (U of A, Alan Nelson)
ASRIP Award: $ 145,560 Total Project Cost: $ 485,200

Information and Communications Technology (ICT)
ASRIP Awards: $ 604,775 *Total Project Costs: $ 1,930,213*

Laboratory for visualization, monitoring and human interaction with intelligent machines and robots (U of A, Martin Jagersand)
ASRIP Award: $ 210,000 Total Project Cost: $750,000
Development of a Wireless Network Testbed (U of C, Abraham Fapojuwo)
ASRIP Award: $ 150,000 Total Project Cost: $ 500,000
Instrumentation for Ultra Precision Dynamic Identification, Optimization and Prototyping of Microsystems Technology and Nanotechnology Based Devices (U of C, Slawomir Spiewak)
ASRIP Award: $105,480 Total Project Cost: $ 351,600
Creation of Biometric Technologies Laboratory (U of C, Svetlana Yanushkevich)
ASRIP Award: $139,295 Total Project Cost: $ 328,613

Investing in Research Capacity (IRC) **ASRIP Awards: $ 280,490** *Total Project Costs: $ 934,968*

Infrastructure for Establishing an Information Research Laboratory (U of A, Michael Li)
ASRIP Award: $105,000 Total Project Cost: $350,000
Microinterfacial and Micromechanical Facilities (U of A, Anthony Yeung)
ASRIP Award: $95,407 Total Project Cost: $318,024
Development of Microarray Systems Using an Archaebacterial Model (U of C, Christoph Sensen)
ASRIP Award: $80,083 Total Project Cost: $266,944

Total New Opportunities **ASRIP Awards: *$ 3,615,941*** *Total Project Costs: $ 11,869,429*